

**ABSTRACT**

Provided is a screening method for compounds affecting fatty acid biosynthesis, the method comprising: providing a reaction mixture comprising: an acyl carrier moiety or enzymes and precursors sufficient to generate the acyl carrier moiety; a bacterial enzymatic pathway comprising at least two consecutively acting enzymes selected from the group consisting of: malonyl-CoA:ACP transacylase, beta-ketoacyl-ACP synthase III, NADPH dependent beta-ketoacyl-ACP reductase, beta-hydroxylacyl-ACP dehydrase and enoyl-ACP reductase; and substrates and cofactors required for the operation of the enzymes; contacting the reaction mixture with a prospective bioactive agent; conducting a high throughput measurement of the activity of the enzymatic pathway; and determining if the contacting altered the activity of the enzymatic pathway.